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PAKISTAN STANDARD
FOR
REFINED SOYA BEAN OIL
(1ST REVISION)

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PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY
Standards Development Centre,
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Karachi-7440

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PAKISTAN STANDARD SPECIFICATION

FOR

REFINED SOYA BEAN OIL (1ST REV.)

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PAKISTAN STANDARD SPECIFICATION
FOR
REFINED SOYA BEAN OIL (1ST REV.).

1. FOREWORD

- 0.1 This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority, Standards Development Centre on **28th January, 2003**, after the draft finalized by the Oil Seeds & their Allied Products Sectional Committee had been approved by the Agriculture & Food Products Divisional Council.
- 0.2 This Pakistan Standard specification was first established in 1983, keeping in view the latest developments, in the Industries, the committee felt it necessary to revise.
- 0.3 This standard has been prepared in order to regulate the quality of refined soya bean oil produced in the country and of imported oil.
- 0.4 In preparation of this standard, the views of the manufacturers, technologists and testing authorities, etc., have been taken into consideration.
- 0.5 The final value, expressing the results of a test or analysis, shall be rounded off in accordance with PS:103-1991 (1st Rev.) "Methods of Rounding off Numerical Values". The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.
- 0.6 All the ingredients preparation, processing, packaging storage and for transportation shall be according to PS: 3733 for Halaal Food Management System Requirement for any Organization in the Food Chain.

1. SCOPE

- 1.1 This standard prescribes requirements and methods of sampling and test for Refined Soya bean Oil.

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2. TERMINOLOGY

2.1 For the purpose of this standard, the following definition in addition to the definitions given under 2 of PS:56-1996 Methods of Sampling & Test for Vegetable Oil & Fats (1st Rev.) shall apply.

2.1.1 Refined Soya bean Oil – Soya bean Oil shall be obtained by chemical or physical refining, bleaching and deodorizing. The final products shall be free from harmful chemical.

3. REQUIREMENTS

3.1 Description – The material shall be obtained from good quality soya bean from the plant *Glycine max. (L) Merrill Syn. Glycine Soja Sieb. and Zucc., fam. Leguminosae* by a suitable process of expression or solvent extraction.

3.2 The material shall be clear and free from adulterants, sediments, suspended and other foreign matter, separated water, and shall have acceptable taste and odour. It may contain antioxidants and synergist as follows :-

| <u>ANTIOXIDANTS</u> | <u>MAXIMUM LEVEL OF USE</u> |
|--|--|
| i. Propyl octyl, and dodecyl gallates. | 100 mg/kg individually or in combination. |
| ii. Butylated hydroxy-toluene (BHT) Butylated Hydroxyanisole (BHA). | 200 mg/kg individually or in combination. |
| iii. Any combination of gallates with BHA or BHT or both. | 200 mg/kg but galltes not to exceed 100 mg/kg. |
| iv. Natural and synthetic tocopherols. | Not limited. |
| v. Ascorbyl palmitate. | 200 mg/kg individually or in combination. |
| vi. Ascorbyl Stearate. | 200 mg/kg individually or in combination. |
| vii. Dilauryl thiodiprodionate. | 200 mg/kg. |
| viii Tertiary Butly Hydroquinone (TBHQ). | 200 mg / kg. |

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| <u>ANTIOXIDANT SYNERGISTS.</u> | <u>MAXIMUM LEVEL OF USE.</u> |
|-------------------------------------|---|
| i. Citric acid and its Sodium Salt. | 0.01 % Max. |
| ii. Isopropyl citrate mixture | 100 mg/kg. |
| iii. Phosphoric acid. | 100 mg/kg individually or in combination. |

3.2.1 The following colours are permitted for the purpose of restoring natural colour lost in processing as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.

| | <u>MAXIMUM LEVEL OF USE</u> |
|--|-----------------------------|
| i. Beta-carotene. | Not limited. |
| ii. Annatto. | Not limited. |
| iii. Curcumin. | Not limited. |
| iv. Canthaxanthine. | Not limited. |
| v. Beta-apo-8 carotenal. | Not limited. |
| vi. Methyl and ethyl esters of beta-apo-8 carotenoic acid. | Not limited. |

3.2.2 When added colour shall be used, the container shall be labeled with the legend "contains added permissible colour".

3.2.3 Natural flavours and their identical synthetic equivalents except those which are known to represent a toxic hazard and other synthetic flavours approved by the codex Alimentarius commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.

3.2.3.1 Use of the following solvents in flavour is prohibited :

- i. Diethylene glycol monoethyl ether.

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ii. Isopropyl alcohol.

3.2.3.2 When natural flavour or artificial flavour shall be used, the container shall be labeled with legend “contains natural flavour or artificial flavour”.

3.3 The clarity of the material shall be judged by the absence of turbidity after keeping the filtered sample at 30 °C for 24 hours.

3.4 Admixture with other Oils – The material shall be free from admixture with mineral or other oils of vegetable or animal origin when tested according to the methods prescribed in PS:56-1996.

3.5 The material shall also comply with the requirements given in Table – 1.

4. PACKING

4.1 The products shall be packed in suitably sealed and well closed containers made from food grade material in accordance with PS:4797-2002 for Flexible packs for the packing of Banaspati, Cooking Oil and Edible Oils or plastic containers (made from Food Grade Material) or in accordance with PS:4773-2002 for Tinplate Containers for Ghee, Banaspati, cooking Oil/Edible Oils.

4.2 The weight of tin container for packing of Refined Soya bean Oil shall be as follows :

| <u>VOLUME OF FINISHED PRODUCT</u> | <u>WEIGHT OF TIN CONTAINERS</u> |
|-----------------------------------|---------------------------------|
| 16 Litre | 880 g to 890 g |
| 10 Litre | 660 g to 670 g |
| 5 Litre | 330 g to 340 g |
| 2.5 Litre | 180 g to 190 g |

5. MARKING

5.1 The containers shall be marked with the following particulars :-

- i. Name of the material in block letter e.g. “REFINED SOYA BEAN OIL”.
- ii. Date of manufacture and Date of expiry.
(PS:4449-1999 Expiration periods for food product shall be strictly followed).
- iii. Name and address of manufacturer.
- iv. Net volume of the contents in litre.
- v. The words contain Vitamin-A 33000 I.U. to 45000 I.U. and Vitamin-D₃ 3000 I.U. to 4500 I.U. per kg of the finished product when packed.
- vi. Pakistan Standard Number and PS Mark.

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- vii. Licence Number.
- viii. Storage conditions.
- ix. Product shall be labelled in accordance with the Pakistan Standard for Labelling of Prepackaged Foods (PS: 1485), in addition to category specific labelling / marking requirement(s).
- x.

5.1.1 The weight of container for Refined Soyabean Oil should be as follows :

| Weight of Finished Product Litre | Weight of Tin Containers (gm) |
|-------------------------------------|----------------------------------|
| 16 | 880 to 890 |
| 10 | 660 to 670 |
| 05 | 330 to 340 |
| 03 | 200 to 210 |
| 0.1 | - |
| 500 ml | - |
| 250 ml | - |
| 100 ml | - |

TABLE - 1
REQUIREMENTS FOR REFINED SOYA BEAN OIL

| SL. NO. | CHARACTERISTIC | LIMITS | REF. TO CLAUSE OF PS: 56-1996* |
|---------|---|--------------------|--------------------------------|
| i. | Moisture, percent by weight, Max. | 0.1 | 4 |
| ii. | Insoluble Impurities, percent by weight, Max. | 0.05 | 4 |
| iii. | Matter volatile at 105°C | Not more than 0.2% | - |
| iv. | Colour in a 5 ¼ inch cell on Lovibond scale max. | R - 5 Y - 50 | 12 |
| v. | Refractive index at 40 ⁰ C. | 1.465 to 1.471 | 9 |
| vi. | Saponification value. | 189 to 195 | 14 |
| vii. | Iodine value (Wijs). | 125 to 140 | 13 |
| viii. | Free Fatty Acid (as oleic acid) percent by weight, Max. | 0.25 | 6 |
| ix. | Unsaponifiable, matter, percent by weight, Max. | 1.0 | 7 |
| x. | Peroxide value, expressed as | 10 | 20 |

| | | | |
|-------|--|--|---|
| | milliequivalents oxygen per kg, Max. | | |
| xi. | Anisidine Value max / Rancidity (Kries Test) ***, max. | 3.0 R | See Appendix-C of PS:221-2003(3 rd Rev.)** |
| xii | Vitamin-A. | 33000 I.U. to 45000 I.U. per kg of the finished product. (Assay variation) per kg of the finished product. | 23 |
| xiii. | Vitamin-D ₃ | 3000 I.U. to 4500 I.U. per kg of the finished product. | |
| xiv | Soap content., ppm, max. | 50 | Appendix-D of PS:221-2003 (3 rd Rev.)** |
| xv | Linolenic Acid percent by wt. min.**** | 5.0 (optional) | By Gas Chromatographic analysis. |
| xvi | Iron (Fe) | Not more than 1.5 mg/kg | - |
| xvii | Copper (Cu) | Not more than 0.1 mg/kg | - |
| xviii | Lead (Pb) | Not more than 0.1 mg/kg | - |
| xix | Arsenic (As) | Not more than 0.1 mg/kg | - |

* Method of Sampling and Test for Vegetable Oils and Fats.

** Banaspati (3rd Rev.).

*** Colour produced in Kries Test shall be interpreted alongwith Peroxide Value and shall be sensory test as negative. If the colour is not deeper than 3.0 R 1 inch cell lovibond scale.

**** The requirements to have equipment for its testing is optional for the time being.

NOTE: Vitamin A & D₃ in Bulk Oils on Import Stage is not necessary.

6. SAMPLING

6.1 Representative samples of the material shall be drawn as prescribed under PS:56-1996 (1st Rev).

7. TEST

7.1 Test should be carried out as prescribed in PS:56-1996 (1st Rev) and PS: 221-2003.

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7.2 **Quality of Reagents** – Unless specified otherwise analytical grade chemicals and distilled water (PS:593-1991) shall be used in tests.

NOTE :- Analytical grade chemical's shall mean chemical that do not contain impurities which affect the result of analysis.

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